GREENSPACE TRENDS IN BLOOMINGTON, INDIANA 1993-2003

By the Bloomington Environmental Commission

In Bloomington we know with a high degree of precision the number of residents, the number of registered vehicles, the miles of streets, the city employment statistics, and the number of tons added to the landfill annually. Accurate data are crucial for well-informed public decision-making. However, we have much less information about the nature of our changing landscape and greenspace in Bloomington. Yet the interface between developed and undeveloped areas is central to many local issues. Natural greenspace areas have well documented benefits including control of runoff and erosion, moderation of temperature, production of oxygen and absorption of carbon dioxide, habitat for wildlife and recreation and relaxation for residents.

Greenspace inventory and protection is not a new concept and is being pursued by many cities and states. For example, in 1999 Governor Jeb Bush established the Florida Forever program to acquire, protect and restore open space, greenways and urban recreational land in Florida. This program commits $3 billion over ten years. Other examples of greenspace acquisition programs at the local level include Hamilton Co., Ohio, home of Miami University (http://www.andersontownship.org/greenspace.htm), DeKalb Co., Georgia (http://www.co.dekalb.ga.us/greenspace/grnspc22601resolution.pdf), and Tallahassee - Leon Co., Florida (http://www.talgov.com/citytlh/dma/budget/fy2002/cap/planning.pdf), home of Florida State University.

To obtain better information, the Bloomington Environmental Commission (EC), with the support of the City Engineering and Planning Departments, Indiana University (IU), and the EC's intern program, initiated a study to assess greenspace cover within the City planning jurisdiction. The EC is a volunteer advisory body appointed by the mayor and City Council that advises the City of Bloomington on environmental matters. This greenspace report is especially timely in light of ongoing discussions of the new Growth Policy Plan. The study examined the status of greenspace (i.e., whether the greenspace is held as park, preserve, public or private land), and how the amount of greenspace has changed over the past decade.

In this study greenspace is defined as land that has three characteristics. First, it must have a permeable surface. This includes forested, shrubby and grassy areas, parks, golf courses, and agricultural areas. Second, greenspace areas must be greater than one contiguous acre. Third, greenspace must be greater than ten feet from any manmade development such as roads, parking lots and buildings. This definition of greenspace excludes most lawns, roadside plantings and small tree-covered plots. These small areas would not likely be targeted for protection although they certainly contribute to Bloomington's environment. Our greenspace criteria were applied across the 1993, 1998, 2002, and 2003 data to provide a standardized method of estimating changes. Our definition of greenspace is consistent with those used by other communities, and follows from the EC's earlier tree cover report.

Aerial photographs, Geographic Information System (GIS) overlays from the City Engineering Department, data from building permits, and site visits provided the data used to estimate greenspace cover in 1993, 1998, 2002, and into the immediate future. In this analysis, the 2002 greenspace excludes development sites that have been both permitted and where construction

is ongoing. The forecast of greenspace in 2003 is based these sites where construction has already begun.

Two color-coded maps showing greenspace status and change are included here. Figure 1 (six-colored map) shows all current greenspace areas and areas converted from greenspace since 1993. Figure 2 (three-color map) shows current greenspace divided into three categories: IU greenspace, park greenspace and non-IU/non-park greenspace simply labelled greenspace. Table 1 presents the breakdown of greenspace acreage into those three categories in 1993, 1998, 2002 and 2003. Table 2 presents the same information in terms of percentage change.

The 1993 aerial photographs commissioned by the City provided the starting point for assessing greenspace cover and changes. Greenspace cover was electronically digitized by tracing the outlines of any areas fitting the definition of greenspace. In Figure 1, all of the colored areas (green, red, pink and yellow) were greenspace in 1993. That initial 1993 GIS map was then overlaid with 1998 aerial photos, and any areas that were greenspace in 1993 but not in 1998 were outlined and colored red. Areas that were converted from greenspace between 1998 and June 2002 were identified using building permits and site visits, outlined on the GIS map, and colored yellow. Finally, areas where grading permits have been granted and construction activity has begun were identified on the map and colored in pink. The Planning Department reviewed the greenspace classification map and provided critique, clarification and ultimately confirmation. The help of the Planning, Parks and Recreation, and the Information and Technology Services Departments, along with aerial and satellite imagery and modern computer technology, has provided a high level of accuracy in the study data.

The greenspace data obtained from the City's GIS and aerial photography data was also cross-referenced with a similar study done in conjunction with the CIPEC program at IU that used Landsat satellite imagery data to determine vegetation loss in Bloomington over time. In general, the results were strikingly similar, providing further evidence for the accuracy of the data presented here and the validity of the conclusions about greenspace trends.

The City's GIS system automatically converted the digitized imagery into land area (acres). The Planning Department jurisdiction, which forms the boundary of the study, totals 16,699 acres, compared to 13,099 acres for the Bloomington city proper. In 1993 there were 8,495 acres of greenspace (Table 1). Of this, 1,283 acres were part of the IU campus and essentially outside of the City's decision-making. Another 1,079 acres were classified as parks, the large majority of which was the Lake Griffy Nature Preserve. All of the rest, 6,132 acres, was neither part of IU or the City's park system, and was therefore essentially "in play".

By 1998 greenspace that was neither park nor under university control had diminished to 5,188 acres (Table 1). By 2002 the number was 4,820 acres, a decline of over 1,300 acres. Since 1993 nearly 22 percent of the "in play" greenspace has disappeared. Moreover, that level is expected to rise to 26 percent within a year given that additional area has been permitted and is now under construction (pink). Some of this land was converted into parks – parks grew by about 220 acres over the same period. But nearly 1,400 acres has been converted from greenspace into something else in the period of one decade.

The rate at which natural areas are being developed suggests that outside of the IU campus and existing city parks, most remaining greenspace in Bloomington will disappear in less than 40

years (Table 2). This is likely to be a conservative estimate given that another 257 acres of greenspace (5.3 percent of the remaining 4,820 acres) have already been approved for development and are under construction. Further, this one-year loss of greenspace suggests that the rate is accelerating. In total, our data indicate that since 1993 Bloomington is losing about 2.5 percent of its non-protected greenspace per year, roughly equal to a remaining 30-year lifespan (Table 2).

Existing protected greenspace within the City's planning jurisdiction has largely come about from one of two ways. Most city holdings (Lake Griffy, Leonard Springs, Wapahani Park, etc.) were deeded to Parks and Recreation from CBU, and they don't have anything left to give. Secondly, during the H. B Wells administration, IU greatly increased the size of its campus, especially to the north where less development has occurred. More recently, some greenspace areas have been donated or otherwise protected by developers in negotiation with the Planning Department as part of larger development projects. These areas are valuable but tend to be small, fragmented and prone to degradation through human or biological processes. For example, Latimer Woods is being heavily invaded by exotic plant species and is subject to dumping and vandalism.

Considering the varied aesthetic, environmental, health, and recreational benefits of naturally-vegetated areas, and the importance of tourism to the local economy, the EC strongly recommends that the City of Bloomington initiate and actively pursue a program of greenspace acquisition. It is clear from public debate that a large fraction of the Bloomington community would support such a program. At present, the city dedicates $50,000 per year to land acquisition through the Department of Parks and Recreation. This is an inadequate sum given public sentiment, the rapidly closing window of opportunity, and the much larger expenditures in so many other areas. For example, compare $50,000 per year to the $1.1 million the City has just spent installing a waterslide and other amenities at Bryan Park Pool. This is not to say that the money was poorly spent at Bryan Park but rather to point out the City's virtual lack of investment in greenspace. We recommend a minimal 10-fold increase in this annual sum ($500,000) for the next 10 years before the opportunity for significant greenspace acquisition is lost.

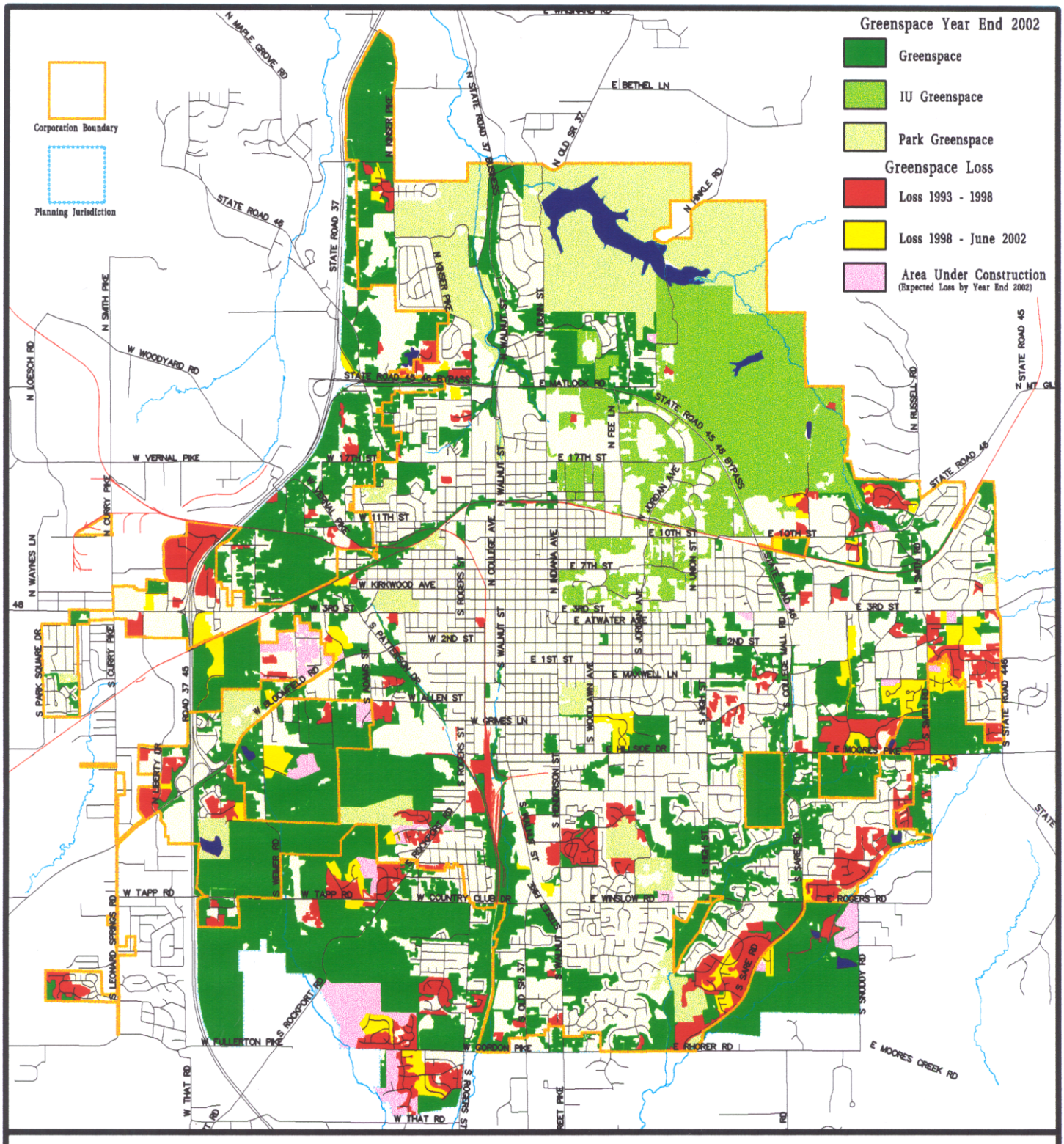
The EC recommends the immediate establishment of a greenspace acquisition program, but implementing such a program is outside of our collective expertise. However, we do have several suggestions of mechanisms for acquiring significant greenspace areas. One area is zoning code changes to create conservation easements, buffer zones, scenic corridors, stream-side buffers and open space requirements, etc. A second area is donations of land for preservation, cooperative ventures with non-profits such as Sycamore Land Trust and use of grants and loans from State and Federal funding sources. However, the primary focus should be on reallocating existing funds or generating new revenues through development fees, user fees, visitor taxes, etc. A long-term, pro-active plan would be superior to the last-chance, piecemeal approach we now have.

Table 1. Bloomington Greenspace Area By Category, 1993-2003 (in acres).

DATE	TYPE	AREA
1993	Total	8,494.65
	IU	1,283.48
	Park	1,079.30
	Non-IU/Non-Park	6,131.87
1998	Total	7645.60
	IU	1,256.52
	Park	1,201.10
	Non-IU/Non-Park	5,187.98
2002	Total	7,373.81
	IU	1,256.52
	Park	1,296.80
	Non-IU/Non-Park	4,820.49
2003	Total	7,114.86
	IU	1,254.20
	Park	1,296.80
	Non-IU/Non-Park	4,563.86

Table 2. Bloomington Greenspace Percent Loss, By Category, 1993-2003.

	% Loss since 1993	% Loss since 1998	% Loss since June 2002
Total -1993	-	-	-
Total -1998	10.0%	-	-
Total - 2002	13.2%	3.6%	-
Total - 2003	16.2%	6.9%	3.5%
IU - 1993	-	-	-
IU - 1998	2.1%	-	-
IU - 2002	2.1%	0.0%	-
IU - 2003	2.3%	0.2%	0.2%
Non-IU/Non-Park -1993	-	-	-
Non-IU/Non-Park - 1998	15.4%	-	-
Non-IU/Non-Park - 2002	21.4%	7.1%	-
Non-IU/Non-Park - 2003	25.6%	12.0%	5.3%
	Increase since 1993	**Increase since 1998**	**Increase since 2002**
Park - 1993	-	-	-
Park - 1998	11.3%	-	-
Park - 2002	20.2%	8.0%	-
Park - 2003	20.2%	8.0%	0.0%



Bloomington Environmental Commission

Greenspace Survey 1993 - 2002

Jun 24, 2002

Scale: 1 inch = 5000 feet

5000 0 5000 10000 15000

For use as map information only, information is NOT warranted.

City of Bloomington
Planning Department

Geographic Information System

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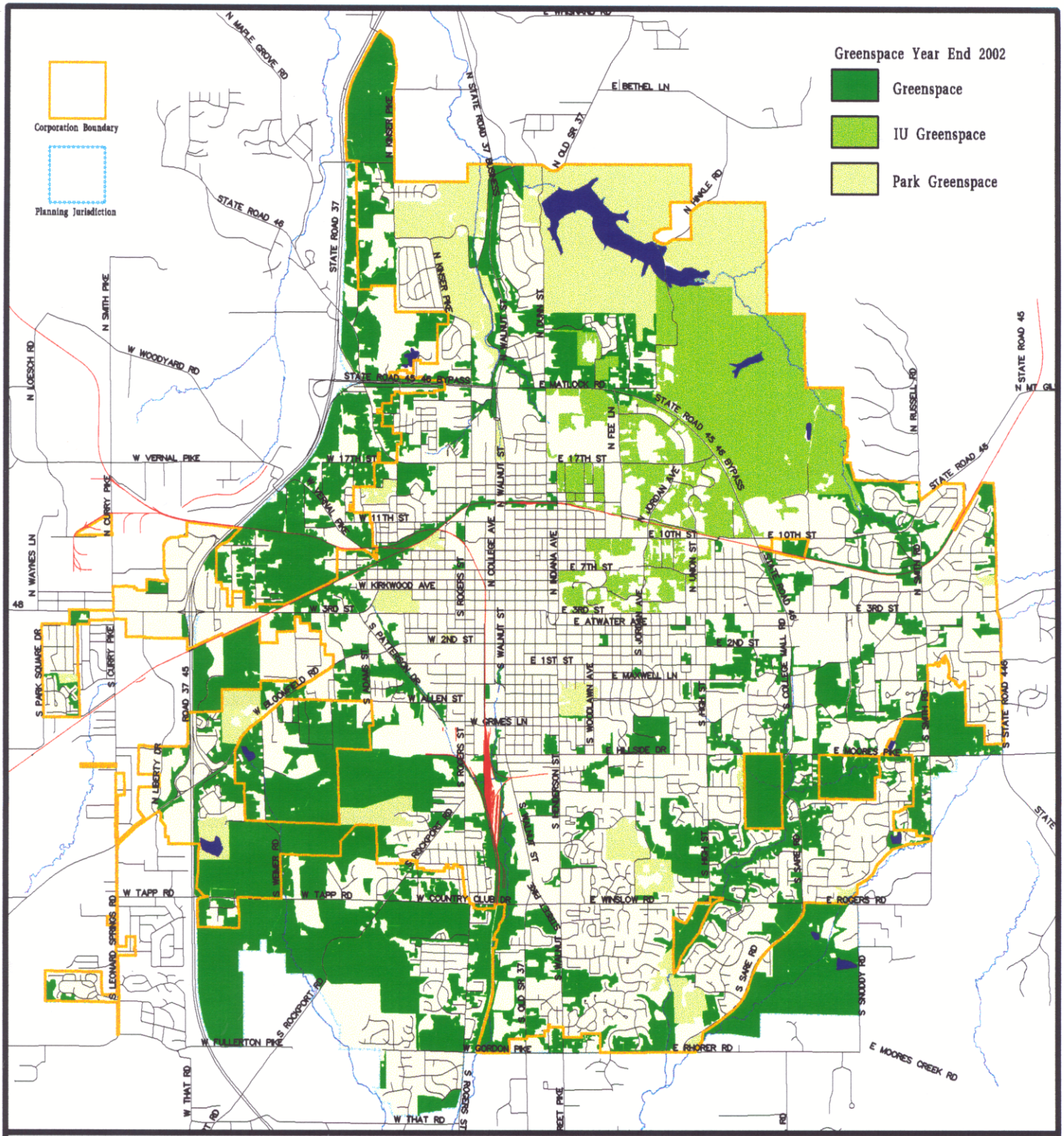

Bloomington Environmental Commission

2002 Greenspace Survey

Jun 24, 2002

Scale: 1 inch = 5000 feet

5000 0 5000 10000 15000

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City of Bloomington
Planning Department

Geographic Information System

For use as map information only. Information is NOT warranted.

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